

February 28, 2005

Alan Goodman
United States Environmental Protection Agency
Oregon Operations Office
811 S.W. 6th Avenue, 3rd Floor
Portland, Oregon 97204

Re: DRAFT Preliminary Evaluation of the Implication of Airborne Asbestos Exposure Concentrations Observed During Simulation of a Selected Set of Common, Outdoor Residential Activities Conducted at the North Ridge Estates Site, Klamath Falls, Oregon (Berman, February 22, 2005) ECSI # 2335

Dear Mr. Goodman:

The Department (DEQ) appreciates the opportunity to provide the USEPA with comment on the above-referenced DRAFT report. DEQ has also forwarded informal comments/suggestions, which are primarily editorial in nature, directly to Ms. Julie Wroble via email on February 24, 2005. The following comments are provided as both general and specific comments.

General Comment

DEQ believes that the Berman DRAFT (Report) has added value in constraining the associated uncertainty associated with estimated risk to asbestos exposure at North Ridge Estates (NRE) originally provided in Dr. Berman's Preliminary Soil Report. The Report is well written and provides some reconciliation of modeled risk estimates with the USEPA's empirical measurements of activity based simulations related to direct exposures to fugitive dust created by disturbing soils containing friable asbestos.

DEQ generally agrees with the Report conclusion that amphibole prevalence at NRE and its attendant risk require further investigation given the refined risk estimation which now exceeds the USEPA upper risk level considered protective. However, DEQ does not necessarily agree with the Report conclusion that estimated risk associated with chrysotile asbestos does not suggest an imminent hazard. Specifically, scrutiny of Table 9 indicates that chrysotile estimated bounding risk to be as high as 1E-04, which equates definitively with Oregon's hot spot standard and which connotes an imminent hazard. DEQ remains concerned about the lack of a technical definition related to asbestos concentrations in soils that constitute an imminent (hot spot) hazard, and we recommend that USEPA require deletion of all references to hot spots for soils (Report) that associate this terminology with buried accumulations of asbestos-containing-materials (burial sites). The state's definition of hot spot is defined by exposure risk and should not be

confused with buried aggregations of asbestos containing debris. We further recommend that USEPA establish a technical definition of hot spots in soils to be coincident with the Oregon risk standard (soil) of 1E-04.

Although we do not have significant concern about the technical approaches used to refine the bounding estimates in the Report, it is unclear how the Report's findings will be used with respect to establishing the need for additional removal actions and/or its implication for additional site characterization designed to further refine risk estimation. Specifically, DEQ thinks that any future and necessary removal action(s) can be authorized and implemented under a new RI/FS Order, based upon our understanding that early action will be permitted under that Order. DEQ recommends that the refined bounding risk (Report) be used, where possible, to identify specific locales subject to early remediation with a principal focus upon prioritization of developed residential properties where the most significant asbestos exposure potential currently exists.

DEQ notes that the refinement of bounding risk (Report) is not a rigorous evaluation of underlying uncertainty associated with risk evaluation provided in the Preliminary Soil Report. The Report's analysis of uncertainty is semi-quantitative. DEQ agrees that the spatial distribution and variability in occurrence of friable asbestos and ACM debris in soils is not currently well understood and we believe this situation represents a significant data gap.

Given the current refined bounding risk estimates provided in the Report, DEQ concludes that additional removal actions are warranted for both friable amphibole and chrysotile asbestos in soils. DEQ also supports the concept of focused sampling strategies to evaluate residual risk following early removal actions that may be associated with remediation of affected residential properties. In this context, DEQ recommends that USEPA begin evaluation of optimum methods for assessing friable asbestos in soil, including but not limited to, the Berman Elutriator Method.

Specific Comment

Page 4; Chrysotile-related risks DEQ agrees that the optimization of model input parameters to include site specific conditions constitute the best bounding estimate available at this time. We also agree that the attendant risks associated with Child's Play are significant when compared to rototilling. At this time, DEQ does not agree with the Report's conclusion that chrysotile-related risks do not potentially pose an imminent hazard based upon our review of revised risk estimates (Report).

Page 5; Amphibole-related risks DEQ does not necessarily dispute the characterization provided in this section related to amphibole-related risk, including the assertion that the lack of a defined pattern suggests a broadly dispersed, very low level of (amphibole) contamination. However, DEQ notes that amphibole (amosite) asbestos is known to be associated with steam pipe at NRE, which was prevalent throughout the affected area and which has been historically removed or disturbed at many locations. We don't necessarily understand or agree with the logic used in this section that

eliminates certain amphibole data, which is then used to support the contention that amphibole asbestos is only rarely encountered. We also are somewhat confused by reference to Figure 1 (Hot Spot # 6), and wonder whether the three (3) glove box amphibole structures from the (b) (6) property should be added to the Report analysis (Messina email to USEPA dated 2-16-05), despite Dr. Berman's contention that interpretation of these results are confounded by QC problems and inconsistencies with splits of Elutriator results. Apparently, this data is not depicted on Figure 1 or included as input in the optimized modeling for asbestos (amphibole) exposure.

Page 11; Considerations Associated with Asbestos Measurements The Report asserts that Short ISO structures are not evaluated for their (small) contribution to risk at NRE and that their associated risk is included by default in the counting of longer structures. DEQ does not dispute this conclusion but recommends that this contention should be supported by more discussion of the potential health threat posed by short structures. (Note: see footnote # 6; page 14 of Report).

Page 26; Data Interpretation This section discusses results presented in Table 7 (Report), which indicates a range of risk estimates between $8E-07$ and $9E-05$. DEQ is concerned about the characterization that these risk values represent actual risks and that they can be considered acceptable on a permanent basis by USEPA. First, this range values are considered unacceptable by Oregon standards. Similarly, the upper end of this range can potentially be considered unacceptable by USEPA given consideration of site specific conditions. DEQ recommends that USEPA and Dr. Berman utilize Oregon ARARs when determining protectiveness standards for human health at NRE, and we recommend the Report's revision to reflect this recommendation. Incorporation of Oregon ARARs now, will avoid potential future uncertainty when DEQ performs a final review of the completed cleanup.

DEQ also notes that the Report presents risk estimates in Table 7 for modeled (Berman) and measured risk (USEPA simulations). However, DEQ is confused by what appears to be conflicting information. Specifically, Table 7 indicates estimated risk associated with (simulated) weed trimming of $3E-06$ (protocol structures) and $8E-07$ (7402 structures). The USEPA Technical Memorandum (October 21, 2004) states that *protocol structure concentrations in one of three samples analyzed for the weed trimming slightly exceeded the screening level* (i.e. associated with $1E-04$). DEQ presumes this apparent difference may be related to modified time estimates introduced by Dr. Berman to the USEPA study, but we would appreciate confirmation of this presumption.

Pages 26-42; Detailed Comparison Between Exposure Measurement and Modeling

DEQ generally appreciates the analysis provided in these sections of the Report and believes it lends additional insight related to possible explanations of differences in modeled and measured estimated risk.

Specifically, DEQ agrees that this analysis is useful for assessing short term (acute) risk based upon existing information and we believe the analysis helps to inform which

modeling input parameters strongly influence variations in estimated risks. It is interesting that the optimized modeling estimates for child's play and rototilling are somewhat larger than exposure concentrations actually observed in the USEPA simulation study, suggesting inherent conservatism in the refined modeling. While we understand the rationale to discount ACM in the refined (optimized) modeling, we note that the ubiquitous presence of ACM represents a long term source for friable asbestos exposure. Therefore, the fact that optimized modeled exposure concentrations are seven (7) and three (3) times smaller for protocol and 7402 structures belies the point that these refined estimates should only be regarded in the context of acute hazard (imminent) at this time. Based upon these refined bounding estimates, DEQ concurs that unacceptable risk is present with respect to disturbance of soils for both amosite and chrysotile friable asbestos.

DEQ agrees that excessive conservatism in modeled input should continue to be evaluated in order to distinguish subtle differences in specific soil disturbing activities. For example, the Report concludes that rototilling exposure concentrations (modeled) are seventeen (17) times larger than observed values and attributes this to excessive conservatism to the dispersion term. Despite an adjustment in this term, DEQ notes that optimized estimated risk for child's play and rototilling scenarios exceed Oregon's protective standards in all cases, and in some instances they would constitute an imminent hazard (Table 9). We agree that these estimates represent the best bounding conditions available at this time. Given the respective magnitudes of these estimates, DEQ also concurs with the Report's conclusion that the optimized model for child's play bound risks for rototilling and potentially other residential pathways that were addressed in the Preliminary Soil Report (except for handling of ACM). DEQ recommends additional work to verify this conclusion since optimized modeling has not been performed on other residential pathways.

Appendix B: Understanding Asbestos Risks and The Study of Asbestos Risks at North Ridge Estates

DEQ agrees that a summary such as this could prove useful in risk communication. However, we recommend revision to this Appendix based upon integration of comments provided in this letter.

Thank you for the opportunity to provide comment for this DRAFT Report. Please contact me at (541) 388-6146 x 224 if you have any questions, comments, and/or seek clarification on any point contained in this letter.

Sincerely,

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Hydrogeologist

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File/LQD/SRS/Bend